NOTATING ELECTROACOUSTIC MUSIC FOR PERFORMERS FROM A PRACTITIONER'S EXPERIENCE

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ABSTRACT

This paper discusses notation practices and experiments within the electroacoustic performance and composition practice of the author. These spring from a performer- and performance-oriented position towards notation in a field that has traditionally catered more to notation for analysis and description. As such, the works and experiences discussed offer hybrid solutions and multiple formats to satisfy specific needs for the effective rehearsal and performance of electroacoustic music. The adaptation of tools specific to electroacoustic practice for more contemporary classical performers is discussed using examples from works written for and by the author in collaboration with other performers and composers.

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1. INTRODUCTION

This short paper presents a field report of my experiences and experiments in the notation of electroacoustic music both as a performer and composer. As such, it is more of an artist statement than a description of methodology and results. In the last ten years, I have commissioned fifteen new works for recorder and electronics,[1] co-composed large-scale works for the same with Monty Adkins and Hildegard Westerkamp and written a dozen works for other performers/instruments and electronics. In the course of these collaborative experiences, notation has always been a puzzle, which I approach in a very practical way, with the performer's experience and needs very much at the forefront of my concern. My relationship to the score is predicated by my first vocation as a performer of early music, deciphering scores where clearly so much information about performance practice, aesthetics and poetics is not available. This affected my own notational practice in two ways: (a) an attachment to a performance score as the simplest possible mnemonic device to jog pre-existing knowledge of style, affect, technique, etc. and (b) a desire to create/have access to a repository of all that pre-existing, accumulated knowledge and detail about a work as part of notational practice. Clearly these are familiar issues that in my case

are coloured by involvement with electroacoustic practice, whose multiplicity of technology evades normalization in notation. My approach is also very much affected by the blurring of roles and duties between composer and performer. The first part of this paper, then, will focus on multiple score formats in the transmission of electroacoustic music for specific instrumentalists and the second will discuss more recent scores I created as a specific performer within co-composition. My goal is not to propose any conclusive method, but to present some solutions drawn from a multi-faceted practice that has grappled with notation within electroacoustic music for some time.

2. MULTIPLE SCORE FORMATS

I began my musical life as an early music performer at a time when historical performance practice still largely pledged allegiance to the Romantic notion of *werktreue*.[1] Over time, I came to realize, however, that the only road to discovering how to successfully decipher early scores and whatever 'intention' might lie behind them was through performance knowledge and experience with *playing* original instruments. Though this performer's perspective and background seems to me fundamental, as Lydia Goehr and others have made abundantly clear the Romantic ideal – carried over and magnified in Modernism – has also necessarily permeated my understanding of a contemporary score's function as carrier of intentionality. I feel, however, that there is a twist: since my work – and that of so many working in electroacoustic music – is the result of collaboration, perhaps a score can carry a multiplicity of intentions. And perhaps it can also remain what it was in the very beginning: not the closest thing to the "work itself" but the simplest possible mnemonic device. In trying to reconcile these divergent aesthetics and needs, I started to experiment with the idea of multiple score formats: one to carry intentions, another to use practically in performance, and a third to satisfy the simplest practice needs. A hyperscore, a videoscore and a paperscore.

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[1] Composers include: Jim Aliteri, WL Altman, Daniel Blake, Ronald Boersen, Juan Parra Cancino, Jorrit Dijkstra, Peter Hannan, Jenny Olivia Johnson, Emilie LeBel, Paula Matthusen, Darren Miller, Robert Normandeau, Laurie Radford, Elliott Sharp, Peter Swendsen.

2.1 Hyperscores

In the context of my doctoral thesis, *Composing idiomatically for specific performers: collaboration in the creation of electroacoustic music* [2], I wrote a piece for solo piano and electronics in collaboration with three pianists. My goal was to examine whether each performer would lead me to write differently for the same instrument, based on their particular interests, abilities and proclivities. When it came time to notate the work entitled *Maly velky Svet* (2013), I searched for a medium that would allow me both to document some of these differences in extra-musical form and to acknowledge the creative contribution these specific performers had made to the process. Basically, I was looking for a way to house the performance practice of the work, which had started with the first ideas and sketches, within the score itself.

Over time, a few other considerations came to light. The first was that a performance-practice repository within the score could be open-ended, in the sense of Eco's *open work* [3]. A hypertext document, where links could be added as comments without necessarily altering the source could encourage future performers to complete the work after their own fashion. Following from this after a fashion, a second consideration was a vision of the work's provisionality, in William Kentridge's definition: "There is not a script or a storyboard. There is a contingency to meaning and what can be gleaned from fragments coming together. A construction rather than a discovery. As with a drawing, a meeting of the world halfway. Only in retrospect does anything have determined inevitability" [4]. The choice of hypertext is a commitment to the non-linear experience of learning a musical work. It has always struck me that the end result of the activities of a musical interpreter is a temporally-defined performance with a beginning and an end, yet its preparation is a series of rabbit-holes and practice loops. A hyperscore encourages and recognizes this contemplative, out-of-time relationship to the score. Finally, I realized that *Maly velky Svet*, a work whose poetic side revolves around childhood and games (with musical references to other pedagogical/children's musical works such as Bartók's *For Children* and Schumann's *Waldszenen*), and that is technically not forbidding, could be a good introductory work for young players. If it were to fulfill such a role, it would have to be explicit and explanatory.

So, practically, what kind of information can be housed in such a hypertext version of the score? To give examples, I will refer to the second and third part of *Maly velky Svet*, entitled FATE and KNOCKING [5]. A hyperscore can include everything from biographical information about the collaborating artists (click Katherine in FATE or Luciane in KNOCKING), inspirational, poetic/aesthetic explanations about the movements (click on the titles FATE or KNOCKING), specific information about sounds and events in the fixed media parts of the electronics (click on F in FATE and B or highlighted section in D in KNOCKING), or explanations of specific techniques (highlighted sections of B and F in FATE). All of this information is of interest and is thus easily available to performers yet does not need to appear on the page during practice or performance. In the past, such information often resided in the preface or legend to a score, yet those predicate a linear experience of such information and seldom include video or audio material pointing specifically to certain events.

2.3 Videoscores

One of my ongoing concerns as a composer of electroacoustic music is providing performers with tools that allow them to rehearse with the electronics as often as possible. The reality is that most performers do not have access to studio monitors or a PA system that would allow them to practice with the electronic part at a volume resembling that of performance. But even more disturbingly, there is often a disconnection between the written score and the electronic part, often with chronometer markings being the only indication of a link between the two. All of the pianists involved in the creation of *Maly velky Svet* were highly experienced chamber music players, and I wanted to tap into their skill set in creating a unified sound between their actions at the piano and the electronic part. Clearly I needed an interface that would allow them to rehearse with the electronics as often as possible, even if without the ideal sound reproduction setup. At the bottom of each hyperscore, there is therefore a link to the videoscore of the work, which integrates the different parts of the piano notation with a timer and the fixed audio part, which includes a mockup of the live electronic elements. Two of the three performers were very enthusiastic about this tool, which allowed them to incorporate the sonic landscape of the work in their everyday practice. They reported that they did not miss a visualisation of the electronic part because the timings that were shown were always accompanied by the sonic event to which they referred, eschewing the need for a visual explanation. At some point we experimented with the integration of a waveform or spectrogram, but since these performers were not adept at or interested in reading these and found their presence more obtrusive than helpful, I kept the information on the screen at any moment as reduced as possible. The notion of showing the minimum information needed came from interviews I had conducted with performers of electroacoustic music in 2012 abot notation and collaboration [6]. Since then, however, I have started wondering whether there is not a potential instructive value to including notation that has become conventional to musicians working with digital media. Subsequent videoscores, discussed in the next section, which I created for my own use flip the type of information included around: instead of traditional notation and a timer, I favour the use spectrograms and waveforms.

2.3 Paperscores

At this point, a conventional score that can be printed is still necessary for most performers. While an increasing number are using tablets or digital devices, most performers still want to have a copy to mark up and use for technical practice of isolated passages. To my surprise, when we came to the final rehearsals for *Maly velky Svet*, several months after the pianists had received the

various score formats, one of the three arrived with a tattered printed copy that she had been consistently using and admitted that she only rarely gave the videoscore a go. Clearly some habits – and notational media – die hard.

3. SCORES FOR ELECTROACOUSTIC PERFORMERS/IMPROVISERS/ COMPOSERS

On some level I understand the reluctance by classi-cally-trained instrumentalists to learn to interpret a new form of notation. I had been looking at spectrograms and waveforms for several years in my electroacoustic com-positional practice before I thought to use them as a form of notation. Perhaps this springs from the fact that elec-troacoustic notation and the software available, ranging from audio editors to musical analysis tools, all work on a descriptive model: they aim to visualize the sound rather than prescribe what to play. There seem to be few options for doing both at the same time, which means that users such as myself, who want to have access to the visualiza-tion of fixed media elements while at the same time show prescriptive (Western) instrumental notation, and who do not want to develop new software, resort to hacking or combining. Perhaps this is because there are not that many instrumental performers (and/or composers) versed or interested in learning and using such tools, or because such combined visualizations might become very messy or complicated for works with more than just a few per-formers.

In any case, it was only when I wanted to notate works I would play myself, where I did not have to worry about any one else's learning curve, that I began to experiment with including prescriptive notation within descrip-tive/analytical software such as the GRM Acousmogra-phe or Pierre Couprie's EAnalyis. The creation of two long works for recorders and electronics with Monty Adkins and Hildegard Westerkamp seemed the perfect opportunity to try out some new strategies without having to worry about transmitting all the small details of per-formance practice. Both Adkins and Westerkamp were more than happy to leave the bulk of the decisions and most importantly the notation of the live recorder part to me. This was entirely logical since these works were largely focused on sounds and playing techniques that were highly specific to my instruments and idiomatic to my way of playing them. In both collaborations, it was also clear that these were not works intended for any other performer to play, they relied on my creating them in the moment every time anew, my playing being an integral part of the work itself. I was therefore in the best position to know how to create the right mnemonic de-vice.

3.1 Lepidoptera

In *Lepidoptera* (2014-15), a 40 minute, five-part work I wrote with Monty Adkins, we shared the recording, editing, processing and putting together of the electronic material. Once that was established, I largely improvised the live recorder part and the playback and processing was often determined with some degree of aleatory by the computer. The indeterminacy was highly controlled by predetermined sets of playing techniques, samples, and a fixed timeline. Each movement relied on a different strat-egy and what I played live evolved and became increas-ingly specific – though not fixed – over the course of the compositional and performance process. At first, when we were composing the work, I needed a score simply for cues and the simplest instruction, since I could remember most of my decisions from one time to the next. Right after we finished this intensive compositional period, we recorded the work, thus creating a document that would then end up serving as my aide-memoire for the bulk of our performances a year later. I was very thankful for that recording, since it allowed me to reconstruct the work – and create a first real score for performance.

This score was a hybrid between an electronic perfor-mance patch in Ableton Live and five videos, one for every movement. For each movement I needed different information – sometimes just a descriptive score of the fixed media in the works where my part was entirely free, other times screen shots of the pertinent parts of the patch in action. The second movement, *Lepidoptera,* has the most "fixed" recorder part, meaning that I play specific fingerings and techniques at determined moments (to align with the automated parameters of the live pro-cessing). I had made the live processing in studio using a mockup of my live part and so I used an Acousmographe of that same mockup to make the performance score. I used the Acousmographe because I liked the control I had over the visual aspects of both the waveform and spec-trogram. I read the waveform to give me information about the timing and shape of the notes I was to play and the spectrogram to show what harmonic content/richness I should aim for in the multiphonic/overblown fingerings. The pitch content was determined by the note fingerings I marked, as seen here in figure 1.
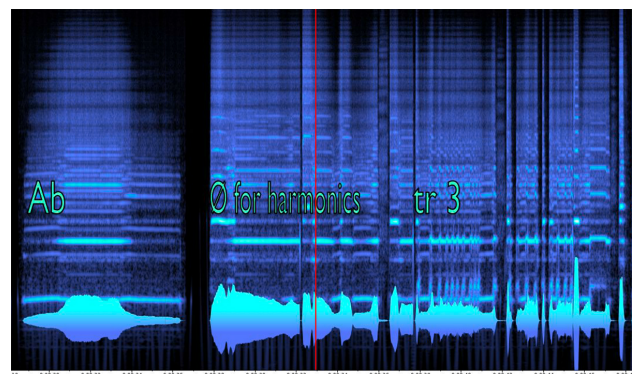

Figure 1. Screenshot from videoscore for *Lepidoptera*. @ 2015 Terri Hron.[7]

The Acousmographe is used here simultaneously as a descriptive and prescriptive tool: it shows what I have to do by using an example of what I have done in the past. Clearly I do not recreate the waveform exactly, but as I perform and rehearse it, I have learned to become increasingly exact. This has then led me to question whether I actually intended such exactitude in the first place, or whether the tool has led me to become so.

3.2 Beads of Time Sounding

The next score for which I used the Acousmographe was *Beads of Time Sounding* (2016), a piece which I wrote with Hildegard Westerkamp that can range from ten to sixty minutes. This collaboration with Westerkamp was based on a series of recordings that she made of me in 2010, improvising in locations significant to her childhood in Osnabrück, Germany. I defined the material I played over the course of the three recording sessions in terms of instrument choice and technique, placing myself as a set of soundmarks in these different locations. When it came time to create the work, I let myself be guided by Westerkamp's deep experience of soundscape composition, and her preference for fixed pieces.

In the beginning, Westerkamp assumed I would simply improvise over and within the soundscape "beads" we would create, since she was at a loss for how to set down or notate anything more specific. She met my suggestion that I use the Acousmographe to create a more detailed score – even if I were to be largely improvising my live part – with enormous enthusiasm, since it was a tool that allowed us to discuss and talk about the sound in a very specific, electroacoustic way. Unlike the score for *Lepidoptera* shown above, the score for *Beads* does visualize the part I should play, but rather the output of the fixed audio part. In *Lepidoptera*, the electronics are different every time, since they are put together in real time from a discrete sets of samples, and the fixed part is what I play. In *Beads*, I am responding to the fixed electronics in the space with the instruments and techniques specified in the score, as shown below.
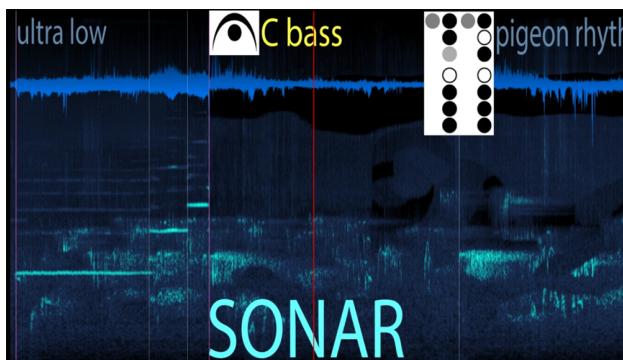

Figure 2. Screenshot from videoscore for *Beads of Time Sounding*. @ 2016 Terri Hron.[7]

One of the features of this piece is the echoing of my playing as recorded in the original field recording by what I play live. As such, the harmonies/spectra and textures that I am creating with the (overblowing of)

fingerings shown are implicit in the sound I am playing with. What I need to see are the important and less important cues to synchronize with and the general form and progress of the piece.

The performances of *Beads of Time Sounding* have convinced me of the viability and power of reading the fixed part in this way (and the videoscore is perfect for practice with the integrated audio as well), since it offers me very precise synchronicity.

3.3 CARDIAC

The ease and simplicity of using the Acousmographe to sync with a fixed audio part motivated me to use it in my latest work, *CARDIAC* (2016), for other performers experienced in playing with electronics: the violin/piano duo Wapiti. After discussing various options that ranged from a videoscore integrating a *Beads*-like Acousmogrpahy with traditional staff notation (like the *Maly velky Svet* videoscores) to a simple paperscore with cue timings, we settled on a hybrid system with a videoscore Acousmography that showed a visualisation of the fixed audio with cues referred to by the paperscore. The performers chose this option since they can read the video on their small phone or tablet devices while still having a full-size staff notation. On my side, it gives me a chance to provide both a reliable cuing/sync mechanism and a description of the electronics. The performers have already been very enthusiastic about how much information this dual system provides. In a sense, we are back at a kind of multiple – or in this case hybrid – format for the different needs, practical and technological, of performers working with media.

4. CONCLUSIONS

Electroacoustic music for instrumental performers has catalyzed the use of notation beyond the staff or the page to deal with the issues that digital media offers and imposes. These include a relationship to fixed (digital) timelines and a greater focus on the extended exploration of spectra and texture. Conversely, the performer and her need for effective rehearsal tools force electroacoustic practice to develop adequate means as well. The non-standardized nature of the relationship between performer and media has eluded a single notation tool, favoring instead a flexibility and fluency with many. It is my hope that the experiences and ideas described here can be a springboard for discussion of performer-oriented electroacoustic notation practice.

5. REFERENCES

[1] L. Goehr, *The Imaginary Museum of Musical Works: An Essay in the Philosophy of Music.* Oxford, 1992, especially 243-286.

[2] T. Hron, *Composing idiomatically for specific performers: collaboration in the creation of electroacoustic music.* DMA dissertation, University of Montreal, 2015.

[3] U. Eco, "The Poetics of the Open Work," in C. Cox & D. Warner (Eds.), *Audio culture: readings in modern music*. Continuum, 2004, p. 172.

[4] W. Kentridge, *Six drawing lessons*. Harvard University Press, 2014, p. 87.

[5] T. Hron, *Maly velky Svet: FATE,* http://www.birdonawire.ca/mvs-fate-hyperscore/ and *Maly velky Svet: KNOCKING,* http://www.birdonawire.ca/mvs-knocking-hyperscore/

[6] ibid. Personal interview with Dana Jessen, April 24, 2012. Discussed in "Exploring the nexus of collaboration, notation and meaning in mixed electroacoustic music," in in *Proc. Electroacoustic Music Studies Conference*, Stockholm, 2012.

[7] INA-GRM. *Acousmographe*. Computer software, 2014. http://www.inagrm.com/accueil/outils/acousmographe.